

**Bachelor Training Program**  
**Faculty of Information Technology - VNUA**

No	Code	Subject	Credits
1	CD03906	Modelling and Control	2
2	CD03909	Automation Softwares	2
3	GT01014	Dance Sport	1
4	GT01015	Swimming	1
5	GT01016	General physical education	1
6	GT01017	Athletics	1
7	GT01018	Aerobic Gymnastics	1
8	GT01019	Football	1
9	GT01020	Volley ball	1
10	GT01021	Basketball	1
11	GT01022	Badminton	1
12	GT01023	Chess	1
13	KN01001	Communication Skills	2
14	KN01002	Leadership Skills	2
15	KN01003	Self Management Skills	2
16	KN01004	Job Search Skills	2
17	KN01005	Teamwork Skills	2
18	KN01006	Intergrated Skills	2
19	KQ01211	Principles of Management	2
20	KQ02014	Principles of Accouting	3
21	KT03024	Economics of trade and services	2
22	ML01001	Principle of Marxism and Leninism 1	2
23	ML01002	Principle of Marxism and Leninism 2	3
24	ML01004	Revolutionary guideline of Vietnamese Communist Party	3
25	ML01009	Introduction to Laws	2
26	MT02011.	Environmental Management	2
27	PSN01020	Teamwork	2
28	PSN01023	Scientific Approach Methodologies	2
29	PSN02008	Soft Skills	2
30	PTH01001	Probability and Statistics	3
31	PTH02001	Advanced programming	3
32	PTH02002	Principles of programming languages	2
33	PTH02003	Data structures and Algorithms	3
34	PTH02004	Data structures and Algorithms 2	3
35	PTH02005	Databases	3
36	PTH02006	Databases 2	3
37	PTH02007	System Analysis and Design	3
38	PTH02008	System Analysis and Design 2	2
39	PTH02009	Computer architectures and Micro-processing	3
40	PTH02010	Principles of operating systems	3
41	PTH02011	Advanced operating systems	2

42	PTH02012	Computer networks	3
43	PTH02013	Information Security	2
44	PTH02014	Discrete mathematics	3
45	PTH02015	Automata and Formal languages	3
46	PTH02016	Data analysis	2
47	PTH02017	Numerical method	3
48	PTH03101	Database management systems	3
49	PTH03102	Database management systems 2	3
50	PTH03103	Object-oriented programming	3
51	PTH03104	Java programming	3
52	PTH03105	Java programming 2	3
53	PTH03106	Developing applications on Windows platform	3
54	PTH03107	Developing applications for mobile devices	3
55	PTH03108	Web application development	3
56	PTH03109	Web application development 2	3
57	PTH03110	E-commerce	3
58	PTH03111	Software engineering	3
59	PTH03112	Software testing	3
60	PTH03113	Software project management	3
61	PTH03114.	Open-source software	3
62	PTH03115	Project 1	3
63	PTH03116	Project 2	3
64	PTH03117	Human-Computer interaction and Graphical user interface	3
65	PTH03118	Bioinformatics	3
66	PTH03119	Data processing in agriculture	2
67	PTH03199	Internship	6
68	PTH03201	Compilers	3
69	PTH03202	Computer graphics	3
70	PTH03203	Artificial intelligence	3
71	PTH03204	Digital image processing	3
72	PTH03205	Software version control	2
73	PTH03206	Designing web interface	3
74	PTH03207	Front-end web development	3
75	PTH03208	Front-end web development 2	3
76	PTH03209	Back-end web development	3
77	PTH03210	Back-end web development 2	3
78	PTH03211	WebGL	3
79	PTH03212	Network administration	3
80	PTH03213	Network administration 2	3
81	PTH03214	Computer and Network Security	3
82	PTH03216	Network Programming	3
83	PTH03220	Games and design techniques	3
84	PTH03221	XML foundations	2
85	PTH03299	Internship	6
86	PTH03301	Optimization	3

87	PTH03302	Coding theory and applications	3
88	PTH03303	Machine learning	3
89	PTH03304	Applied statistics and prediction	3
90	PTH03305	Data mining	3
91	PTH03306	Stochastic simulation and applications	3
92	PTH03307	Management information systems	3
93	PTH03308	Decision support systems	3
94	PTH03309	Partial differential equations and applications	3
95	PTH03310	Partial differential equations and applications 2	3
96	PTH03311	Mathematical models in finance	3
97	PTH03312	Mathematical foundation of fuzzy	3
98	PTH03313	Soft computing and applications	3
99	PTH03314	Convex optimization and applications	3
100	PTH03315	IT project design and management	3
101	PTH03316	Distributed systems	3
102	PTH03399	Internship	6
103	PTH04199	Graduation thesis	10
104	PTH04299	Graduation thesis	10
105	PTH04399	Graduation thesis	10
106	QS01001	National Defense Education 1	3
107	QS01002	National Defense Education 2	2
108	QS01003	National Defense Education 3	3
109	SN00010	An Introduction to CEFR-based Tests	1
110	SN00011	English 0	2
111	SN01032	English 1	3
112	SN01033	English 2	3
113	SN01027	Communication skills	2
114	SN03039	English for ICT studies	2
115	TH01001	Basics of Informatics	3
116	TH01002	General physics A	3
117	TH01006	Linear algebra	3
118	TH01007	Probability and Statistics	3
119	TH01012	Analysis	3
120	TH01020	Electronics applied in informatics	2
121	TH01022	Computer architectures and Micro-processing	3
122	TH01023	Discrete mathematics	3
123	TH01024	Calculus	3
124	TH01025	Numerical methods	2
125	TH01029	Physics for informatics	3
126	TH01030	Enhanced practice for Basics of informatics	1
127	TH02001	Database	3
128	TH02015	Principles of operating systems	3
129	TH02016	Data Structures and Algorithms	3
130	TH02033	Algorithm Complexity	2

131	TH02034	Programming techniques	3
132	TH02035	Practice for Data Structures and Algorithms	1
133	TH02036	Introduction to Software Engineering	3
134	TH02037	System analysis and design	3
135	TH02038	Computer networks	3
136	TH02039	Information security	2
137	TH02040	Enhanced practice for Programming techniques	1
138	TH02041	Algorithm Complexity	2
139	TH03101	Software Project Management	2
140	TH03102	Software Requirements Engineering	2
141	TH03103	Software Architecture and Design	3
142	TH03104	Software Construction and Evolution	2
143	TH03105	Software Testing and Quality Assurance	2
144	TH03106	Object-Oriented Programming	3
145	TH03107	Database management systems	2
146	TH03108	.NET Programming	3
147	TH03109	Web application development	3
148	TH03110	Web Application Development 2	3
149	TH03111	Java programming	3
150	TH03112	Mobile Application Development	3
151	TH03113	Linux and Open Software	3
152	TH03114	Web application security and testing	3
153	TH03115	GIS Application Development	3
154	TH03116	E-commerce	3
155	TH03117	Enterprise Resource Planning Systems	3
156	TH03118	Development of distributed software	3
157	TH03119	Java programming 2	3
158	TH03120	Enhanced Practice for Object-Oriented Programming	1
159	TH03121	Enhancing Practice of Web Application Development 2	1
160	TH03122	Enhanced Practice for .NET Programming	1
161	TH03123	Enhanced practicing for Java programming	1
162	TH03124	Database security	2
163	TH03125	Vulnerability detection	2
164	TH03126	Malware Analysis	2
165	TH03199	Internship	12
166	TH03201	Object-oriented analysis and design	2
167	TH03202	Software version control	2
168	TH03203	Compilers	3
169	TH03204	Digital image processing	2
170	TH03205	Computer graphics	3
171	TH03206	Artificial intelligence	3
172	TH03207	Machine Learning	3

173	TH03208	Special subject: data analysis	2
174	TH03209	Designing web interface	2
175	TH03210	Front-end web development	3
176	TH03211	Front-end web development 2	3
177	TH03212	Back-end web development	3
178	TH03213	Back-end web development 2	3
179	TH03214	Data communication technique	2
180	TH03215	Computer network design	3
181	TH03216	Network administration	3
182	TH03217	Network programming	3
183	TH03218	Multimedia communication	3
184	TH03219	Principles of wireless communication	2
185	TH03220	Open source operating systems	2
186	TH03221	Games and design techniques	3
187	TH03223	Enhanced practice for Network administration	1
188	TH03224	Network security and operating systems	3
189	TH03225	Computer network monitoring	3
190	TH03226	Strategic security management	2
191	TH03298	Internship 1	6
192	TH03299	Internship 2	6
193	TH03301	Management Informaiton Systems	3
194	TH03302	Decision support systems	3
195	TH03303	IT project design and management	3
196	TH03304	Mathematical models in finance	3
197	TH03305	Database 2	3
198	TH03306	Fundamentals of Coding	2
199	TH03307	Python Programming	3
200	TH03308	Fuzzy logic and applications	2
201	TH03309	Knowledge systems	3
202	TH03310	Big Data analysis	3
203	TH03311	Optimization	3
204	TH03312	Data mining	3
205	TH03313	Cryptology and Applications	3
206	TH03314	Information system security testing and assessment	2
207	TH03399	Internship	12
208	TH04199	Graduation Thesis	10
209	TH04299	Graduation thesis	10
210	TH04399	Graduation thesis	10